

ELECTRICITY FOR UN AGENCIES IN HUMANITARIAN SETTINGS

ADVANCING SUSTAINABLE ENERGY SOLUTIONS AND MINIMISING THE USE OF DIESEL



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WORKSHOP SERIES REPORT

Prepared by Paul Quigley for Workshop I, held with UN Agencies and ICRC on 2 July 2019,
and Workshop II with private sector energy and finance organisations on 16 July 2019

SUMMARY OF OUTCOMES OF WORKSHOPS I & II

Humanitarian agencies need to transition to more sustainable approaches to generating and using electricity; shifting from their dependence on fossil fuels. Private sector energy companies have the necessary expertise, experience and technologies to assist humanitarian agencies in this transition. The aim of this workshop series is to explore the specific challenges to developing clear pathways to more efficient and renewable electricity systems, and to develop workable solutions that support humanitarian organisations to take positive, practical steps towards lowering their operating costs and mitigating their impact on climate change, which is one of the primary drivers of forced displacement.

This report reviews the outcomes of Workshops I and II, exploring how UN agencies approach electricity generation in humanitarian settings, highlighting the obstacles to change, opportunities for private sector engagement and outlining discussions on potential delivery models that can be used to shift to cleaner and cheaper electricity. The outcomes from both Workshops are noted below and described in more detail in later sections of the report. Recommendations to support UN humanitarian agencies transition to more sustainable energy solutions are also provided.

POSITIVE STEPS FORWARD

1. Long-term agreements are possible between humanitarian agencies and private sector energy providers, increasing opportunities for renewable energy systems in remote, high-risk settings.

Some agencies already have agreements in place that extend over a 5-year period and these are possible once UN agencies have incorporated clear termination clauses into the long-term agreements. Financial guarantee mechanisms were identified as key instruments that would help offset the commercial risks associated with the high investment costs of sustainable energy systems, enabling the service provider to recover outstanding investment costs if the termination clauses in such long-term energy-service agreements is triggered.

2. Agencies are willing to collaborate and develop shared electricity sources

Agencies acknowledged the benefits in having central, shared electricity supplies to address the needs of multiple organisations, and also acknowledged the commercial advantages in aggregating projects within a region or country to improve the likelihood of private sector engagement and potentially reduce costs through economies of scale. Participants stated a willingness to collaborate on joint projects and noted that shared contracts already exist between humanitarian organisations, including contracts for the purchase of electricity.

3. Procurement rules in humanitarian agencies do allow for alternative delivery mechanisms and financial models

Procurement rules do not preclude any of the delivery models or financial approaches that were discussed. However, the practical application of these rules is likely to create some challenges as procurement sections do not have personnel, or have limited access to personnel, with comprehensive expertise and experience of energy services and evaluating life-cycle costs for technically and financially complex solutions. There are also no standardised processes that management and programme staff can follow to support the procurement of sustainable energy services, and as such the purchase of diesel generators and low efficiency appliances continues.

4. Widespread recognition of the need for change and collaboration in generating and using electricity

All participants, across multiple disciplines, recognise that humanitarian agencies need to adopt more sustainable, cheaper and cleaner energy practices. They recognised the need to engage organisations with extensive experience and expertise in successful design, installation and operation of sustainable energy systems, as they have very few personnel with such skills. Private sector companies who can provide such services expressed a willingness to work with humanitarian agencies in challenging contexts, to align themselves with the core mandates of humanitarian organisations and to assist them with creating solutions that meet their specific needs.

5. Opportunities do exist to provide energy services to humanitarian agencies and also to the people they serve

Humanitarian agencies require external support on how to best procure sustainable energy services as they have little, or no expertise or experience in this area. Agencies stated that in the first instance they wish to focus on the energy needs of their operational facilities, as provision of electricity to all of the people that they serve, and the local host communities, is far beyond their capacity, given that present funding levels are already well below what is required. However, there are opportunities for development actors, donors and private sector organisations to create or expand energy systems to address the energy needs of affected communities, increasing their quality of life and the humanitarian situations by building upon an energy system that is anchored to a UN client.

BARRIERS

1. No clear pathway within UN agencies for transition to renewable and efficient use of electricity

Transitioning to sustainable energy systems involves coordination across several sectors, in addition to evaluating the multiple alternatives, technologies and approaches to delivering solutions. It was noted that many of the existing energy transition projects are reliant on the efforts of a small number of champions within an organisation, with all agencies experiencing very similar challenges in promoting institutional change on this topic. Effective change will require a multi-sector approach across each organisation, with clear strategies and plans created at the working level that are fully supported at the executive level.

2. Lack of data for informed decision making

There is a lack of reliable, relevant data on electricity consumption and costs that could clearly demonstrate the case for energy efficiency projects and renewable energy systems, within the UN agencies and to the relevant private sector actors. Mechanisms to systematically record the energy use of agencies, as well as its implementing partners, are necessary, including the development of tools to analyse the resulting data. Energy providers, and other private sector actors, are willing to share data from their own energy projects, which could help to validate potential solutions, including technologies and delivery models.

3. Need to improve mutual understanding between UN agencies and private sector

UN agencies perceive that private actors have different principles and objectives to theirs and that commercial enterprises do not fully understand the mandates and procedures of the UN agencies. Conversely, the private sector stated that the UN should look beyond the traditional ways of engaging companies – funding and donations - and be open to appreciating the technological and efficiency gains the private sector can bring to delivering solutions in humanitarian settings. There is therefore a need to improve mutual understanding between humanitarian actors and private actors on shared values and goals.

4. Agencies need access to multi-year funding structures that permit multi-year project planning

To assist humanitarian agencies in taking a longer-term project outlook, multi-year funding needs to be made available and/or alternative financing mechanisms need to be developed that support private sector solutions, which work with annual budget structures of humanitarian agencies. To promote the uptake of more efficient energy services, budgeting mechanisms must be adapted to enable and encourage savings resulting from the implementation of energy efficient solutions.

5. Smaller systems do not present viable prospects for private companies to own and operate

The high costs of operation and maintenance means that companies cannot provide competitive costs for owning and operating smaller electricity systems (less than 50kW). There are many locations with low electricity demands and though agencies could directly purchase systems themselves, this would require higher levels of in-house expertise, up-front capital, in addition to resolving other barriers

highlighted in this report. Grouping multiple systems within a region, and across multiple agencies through regional service agreements that extend over several years, could help to address this issue.

RECOMMENDATIONS

1. Engage with commercial enterprises providing energy services to co-develop standardised long-term agreements, clearly detailing terms, conditions and termination clauses for approval by all parties.
2. Explore the potential for risk mitigation and financial support mechanisms that facilitate increased private sector engagement in providing sustainable energy services in humanitarian settings.
3. Develop a training program for procurement personnel within humanitarian agencies on undertaking complex technical and financial evaluations of energy projects using life-cycle cost analysis.
4. Undertake a review of the processes within humanitarian agencies in order to standardise the approach to procuring sustainable energy goods and services, outlining potential barriers and workable solutions, and to develop clear strategies and pathways that management can support.
5. Coordinate with commercial enterprises to obtain relevant and reliable data on existing renewable energy projects and demonstrate the case for transitioning from diesel powered generators to more sustainable energy solutions. Approach donors to provide energy monitoring tools and support for energy assessments of target locations to demonstrate the needs and develop the business case for clean and efficient energy systems.
6. Increase dialogue between humanitarian agencies, development actors, donors and commercial enterprises to promote mutual understanding and foster strengthened partnerships. Opportunities exist for energy providers to provide sustainable energy services to humanitarian agencies at lower costs with reduced emissions, in addition to enabling affordable, clean and reliable energy access to the forcibly displaced and hosting communities, increasing self-reliance and resilience, while also reducing protection risks.
7. Identify potential locations where energy sources could be shared across agencies, and where multiple systems could be grouped into a single service agreement. Engage energy providers in develop a clear business case and implementing sustainable solutions.
8. Develop approaches to increase availability of multi-year funding and develop alternative financing mechanisms that can support the purchase of private sector solutions through annual budget cycles.

Additional actions recommended for humanitarian agencies

General recommendations that would support the transition to cleaner and cheaper sources of electricity, include:

- Implement systematic metering of energy use in operations, increase accountability for its efficient use and report the cost of energy as a cost per person across an operation;
- Procure energy efficient appliances to reduce energy demand;
- Implement behavioural change programmes that support staff in adopting energy efficient measures;
- Where practicable to do so, clustering buildings and energy consuming activities to enable shared power sources, including those from other UN agencies and implementing partners; and
- Site planning to consider orientation of buildings to the sun, insulation, shading and other possible ways to design facilities for lower energy needs.

WORKSHOP SERIES OBJECTIVES

Actors responding to humanitarian crises need to transition to more sustainable approaches to generating and using electricity, moving away from their dependence on fossil fuels. This report provides a summary of two workshops and explores the key challenges of providing energy in humanitarian settings, reviews how humanitarian agencies approach electricity generation, highlights the obstacles to change, and investigates potential delivery models that could be used to shift to cleaner and cheaper electricity.

The aim of the workshop series was to develop workable solutions so that all stakeholders (including donors, energy providers and humanitarian organisations) can take positive, practical steps towards mitigating climate change, which is one of the primary drivers of forced displacement. Participants in the workshops examined the barriers and opportunities described below, while exploring the issues and potential solutions in greater detail.

Why transition to cleaner energy production?

- Increase energy access for the forcibly displaced
- Save on electricity costs
- Reduce CO2 emissions and pollutants, improve environmental performance
- Increase reliability and security of electricity
- Reduce logistics concerns and risks associated to fuel supply
- Reduce consumption of fossil fuels
- Improve staff wellbeing

Barriers to change

- High up-front costs of renewable systems
- Long procurement times
- No measurement or analysis of energy consumed
- Lack of local capacity, expertise and experience

Developing Solutions

- Assessment of energy requirements and available technologies
- Sustainable procurement, long-term contracting and risk-management guarantees
- Models for financing, supports and incentives, life-cycle cost analysis and cost comparisons
- Holistic design, multi-stakeholder approach

Two workshops were held in quick succession during 2019 to co-design solutions that support the sustainable energy transition of the humanitarian sector, with a focus on solutions that replace existing or planned diesel generators with renewable or hybrid energy solutions supplied by the private sector. Workshop 1 was focused on identifying the redline boundaries within existing UN budgeting, programming and procurement process to understand the parameters in which the energy delivery models and financial solutions must work. The results of this session were presented in Workshop 2, where potential energy delivery models and financial solutions were discussed by the private sector, with a view to developing a mutually acceptable approach that secures the engagement of both the UN and private sector in delivering sustainable change.

Workshop 1 was held in Geneva on 2 July 2019 and was only open to UN staff. The workshop was co-hosted by GIZ and the GPA Coordination Unit of UNITAR. Workshop 2 was co-hosted by Shell and the GPA Coordination Unit and was held in Amsterdam on 16 July 2019. Attendance to this workshop was limited to private sector companies who are already working or investing in or have an interest in working in, humanitarian settings or remote, energy poor communities.

BACKGROUND

In 2019, there are over 130 million people who are in need of humanitarian assistance across 42 countries, representing one in every 70 people on the planet. The primary driver is conflict, in addition to natural disasters, and other complex global challenges which have led to over 70 million forcibly displaced people.¹ An essential component of delivering assistance and protection to these people is a reliable electricity supply to provide clean water, operate medical clinics and schools and to power offices, warehouses and staff accommodation.

To date, many humanitarian field operations rely on oversized, costly and polluting diesel generators, combined with the use of inefficient appliances and have no restrictions on energy consumption. Additionally, there is minimal monitoring of electricity usage, with little incentive to become more energy efficient or shift to renewable alternatives.

While no comprehensive study has yet been carried out on the costs of electricity across global humanitarian operations, a recent study reports that these costs are almost 2% of annual expenditure.² Another estimate indicates that spending on electricity is less than 1 % of total humanitarian global budgets.³

While this may be a small percentage, it does mean that hundreds of millions of dollars will be spent on electricity use, with the United Nations and other organisations requiring more than \$21.9 billion to provide humanitarian assistance in 2019.¹

With potential savings of between 20 to 80%, considerable funds could be redirected to address other needs (20 to 50% savings are possible through energy efficiency and behavioural change measures, with a further 10 to 30% on effective use of clean technologies). In addition, harmful emissions could be reduced by hundreds of thousands of tonnes per year. Actual savings depend on many factors including cost of diesel, availability of alternatives, management support and staff willingness, and these vary across agencies and in different contexts.

Recognising the need for a cheaper and cleaner approach to energy use, several humanitarian agencies have taken positive steps to move towards sustainable energy solutions with FAO, ICRC and WFP developing energy efficiency programmes for their operations and IOM actively engaging in the hybridisation of diesel water pumps. UNHCR is in the process of developing a sustainable energy strategy and has implemented renewable energy solutions in multiple locations. UNDP has developed a “7-Step Green Energy Solution” for implementing solar energy systems, with several success stories to date. It is willing to share this process and learnings from its implementation, with other humanitarian agencies, providing support to transition from diesel generators to sustainable energy solutions. However, progress is slow, and all agencies have reported concerns over long-term funding for sustainable energy projects combined with a lack of resources to scale up such activities.

While there is a suite of actions which lead to reduced energy costs, the workshops and this subsequent report, focused on electricity generation and minimising the use of diesel. This report concentrates on electricity required for humanitarian organisations to operate. It also includes electricity use by the forcibly displaced in their households or businesses, and partner organisations, however, only where this is paid for by UN agencies. It does not consider electricity use where this is paid for directly by households and businesses, or in situations where it is provided to them by other organisations.

¹ Global Humanitarian Overview 2019, OCHA

² The Costs of Fuelling Humanitarian Aid, Moving Energy Initiative, December 2018.

³ Evaluation of UNHCR & WFP spending on electricity in Bangladesh & Jordan; Reported global spending on energy and diesel as % of total budget for UNHCR 2013-2016

ENERGY USE IN THE HUMANITARIAN SECTOR

Electricity in humanitarian situations is provided primarily through the inefficient use of diesel generators with some operations connected to local electricity grids. Very few have any renewable power sources and there is little measurement or evaluation of either fuel use or energy consumption. Reported spending on diesel includes its use in vehicles and electricity generation, and in most cases the diesel consumption for either use is not separately documented, making it difficult to estimate fuel use for electricity production.

There is also minimal metering or analysis of electricity consumption or costs, so that neither the operation, nor its staff, take account of their energy use or evaluate potential cost savings. There is almost no accurate or reliable data on diesel consumption for electricity generation, or for units of electricity used at the vast majority of field locations. This lack of measurement and data makes it difficult to: quantify how much energy is being used; make comparisons between other operations; and to calculate potential savings from the application of energy efficiency measures and the use of modern generation technologies.

One of the key drivers for the issues surrounding electricity generation, distribution and its use, is the lack of suitably qualified and experienced staff to oversee and manage how systems are delivered in humanitarian settings. It is not reasonable to expect staff in procurement, admin, ICT or other sectors to take responsibility for an area in which they are not experts, or to expect high quality results without appropriate input and resources.

Lack of technical expertise results in poor design of electrical generation and distribution systems, in addition it also leads to the procurement of low-quality equipment and poor installation. Many of the existing generators are oversized, which leads to lower machine life and increased operational costs. Poor maintenance and fuel theft are also a concern in many locations, in addition to complex and insecure logistical challenges associated to fuel delivery through hostile environments.

Electrical wiring and equipment are very often badly installed with low quality materials, resulting in increased system losses, in addition to unsafe and unreliable electrical installations which require continual maintenance. This causes damage to equipment including computers, printers and refrigeration units, which then need replacement. It also causes electric shocks and fires, presenting a danger to staff and again increasing costs. Such challenges have been recognized by MSF, who have developed "[rules and tools](#)" for the safe installation of electrical systems.

Appliances are procured mainly on the basis of purchase price and are generally inefficient, low quality and cost considerably more in the longer term than high efficiency, high quality products.

There are few practical guidelines or strategies, at either field or HQ levels, for the promotion of energy efficient measures. Staff are not trained in energy efficient behaviours or possible energy saving measures, and there is little management support for encouraging more sustainable use of electricity and no incentives to take positive action.

UN agencies will often provide electricity and/or diesel to partners, as part of their annual budget agreement, given to them by the UN agency as a lump sum amount. However, neither the amounts of diesel used for electricity production, or the quantity of electricity consumed are measured and there are no incentives for partners to reduce diesel consumption or electricity use, as they don't have to repay the cost.

EXISTING UN PROCEDURES FOR THE PURCHASING, MAINTAINING AND FUELLING OF DIESEL GENERATORS

The UN have well-developed practices on sustainable procurement, which advocate for the consideration of environment impact using life-cycle analysis. However, there is little practical application of this in relation to energy goods and services, mainly due to the complexity and levels of investment involved.

Since procurement sections do not have expertise in energy goods and services, the best value option needs to be evaluated by those who possess a full understanding and extensive experience of those services. In the absence of such personnel, it is very difficult for procurement to make the right choices. This lack of expertise and understanding can lead to the purchase of goods or services based on initial costs, as opposed to total costs and performance over the life-time of those goods or services.

There are several steps in the process leading to the procurement of energy systems and services. The following is a simplified explanation of the UN processes, and where there may be some differences between agencies, the same principles generally apply.

Needs identification

Identification of needs and specification of requirements is undertaken by those who are responsible for the sector in which the need arises – e.g. WASH for water and sanitation, ICT for servers, computers and phones etc. In most field operations, there is no energy section and thus, the identification of the need can be carried out by a variety of sectors, predominantly Administration, ICT, WASH or Shelter, who do not have adequate expertise or experience to accurately estimate or specify what is required to provide the most sustainable, cost effective solution.

Requirements and specifications

In general, the procurement service in a UN agency does not take responsibility for ‘what’ to procure and is more concerned with ‘how’ to procure. For example, the size, specification and numbers of generators is normally carried out by other sectors who advise the procurement section of the requirements. The procurement section will then determine the most appropriate procurement mechanism, ensuring UN (and agency) rules are adhered to in carrying out a transparent, competitive process that leads to the ‘best value’ option.

Funding and budget

Based on the specifications and quantities required, costs are calculated and a budget line is allocated for the goods or services to be procured, in addition to annual operating and maintenance costs. This is normally the responsibility of the budget or programming section.

Once budget is allocated and approved, the procurement process can begin. This is followed by delivery, installation, operation and maintenance.

Procurement

Procurement can only be carried out by authorised personnel within an agency, and implementing partners of UN agencies (NGOs and others) must also adhere to these rules when procuring goods or services.

A key requirement of procurement in emergencies is that goods and services can be delivered to where they are needed as quickly as possible, which does not allow for normal procurement approaches. In addition to partnering with other organisations to share the procurement load, agencies have developed mechanisms to speed up the process, namely stockpiling and Frame Agreements (FAs) or Long Term Agreements (LTAs).

Stockpiling of non-perishable goods in strategic locations can lead to much faster responses in emergencies. However, certain energy goods that contain deteriorating parts such as rechargeable batteries, are not suitable for stockpiling.

FAs or LTAs allow contracts of up to 2 years with suppliers to provide goods or services for fixed prices. It is possible to renew the agreements at termination. There is a limit to the total quantity which can be purchased but usually no minimum amount. These are set up following a competitive tendering process, focusing on the bidder's ability to provide required quality and capacity with quick delivery times. An agency may have agreements with several suppliers for any given product or service, to provide additional security of supply.

In some cases, it is possible to waive certain procurement rules, such as the need for competitive tendering, however, there are also strict rules and procedures for this to be approved. This can be useful in extreme emergencies or cases of monopoly (such as national electricity providers).

Before a contract can be awarded or purchase order issued, following a tendering process, it must pass through an approval process at either local, regional or global level, depending on the contract value. Approval must also be received from the budget/programme section prior to award of contract.

It is not possible for a company to work with a UN agency in developing a product or service, and to subsequently take part in a competitive tender to provide the same good or service. Such product development may be better carried out through a third party, who engages with multiple actors in a transparent and inclusive development process.

The supplier must agree to the terms and conditions in the purchase order, and also, the General Conditions of Contracts for the Provision of Goods and Services. Payments are made based on delivery of requirements, the details and times for which are set out in the purchase order. Any changes to standard contracts must be approved by the legal section and this can involve lengthy negotiation with the supplier. In some cases, the procurement process can take several months, particularly when the goods or services are complex and require changes to standard documents or procedures.

Many energy projects involve complex technical and financial tenders and evaluations, and it can be challenging for procurement personnel to assess the best value options, as such they rely on expertise outside the UN who are not familiar with procurement rules. This can present challenges for both parties and it is therefore important that project managers work closely with procurement, budgeting and other sectors from the concept stage all the way through installation and operation, to ensure effective communication and coordination throughout the process.

Installation, operation, maintenance and monitoring

Oversight of installation, operation and maintenance is normally carried out by those personnel who identified the needs and specified the original system requirements. Ideally this would be somebody with extensive experience and expertise in this area, however, as noted this is not often the case. Monitoring and fuel and consumption rarely takes place and there is minimal evaluation of ways to improve performance and reduce costs.

This simplified procurement process is depicted in the following diagram.

EMERGENCY RESPONSE**– CURRENT PROCESS TO DELIVER ELECTRICITY GENERATION**

Need for Power
identified

**REQUIREMENTS & SPECIFICATIONS**

- Load estimates (UN agency & partners)
- Sizing of Diesel Generators and estimate fuel consumption

FUNDING / BUDGET

- Allocate capital cost for installations (UN agency and each partner)
- Allocate annual operation and maintenance costs (UN agency and each partner)

**PROCUREMENT**

- Use LTA / Global Frame Agreement **OR** international / local tendering
- Technical & financial evaluation
- Contract Award



Installation

Operation and
Maintenance

Sectors Responsible

Admin or ICT or Site Planning or WASH	Mostly ICT or Admin Sometimes Supply or WASH or Site Planning	Programme/ Budgeting	Supply/Procurement ICT/WASH/Admin (tech evaluation)	Admin or ICT – supervise installation Supply/programme /Finance -Approve payments	Admin or ICT or WASH – review performance & maintenance Supply & programme & finance – annual payments & renewal of contracts
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WHY DOES DIESEL GENERATION REMAIN THE STANDARD OPTION?

Diesel generators have been around for a long time, with proven reliability and their presence is recorded in all locations and contexts. They are easy to procure and quick to deploy in emergencies. Off-the shelf, ready-to-go systems can be quickly procured through LTAs or FAs, sometimes even more quickly through local procurement. Specialist expertise is not required to make basic connections to a diesel generator or to switch it on, making them easy to install by local contractors who are familiar with diesel generators (though connections or maintenance are not always to a high standard). They have low up-front costs and function well in most conditions and locations, operating day or night, rain or shine.

Renewable energy systems on the other hand, are relatively new in comparison, and have a limited track record in humanitarian settings. They require specialist expertise to oversee the design, installation, operation and procurement process and off-the shelf solutions are not under LTAs or FAs, so that procurement and deployment is slow. Up-front investments are higher and also involve greater risk. They are also affected by weather and local conditions, so that many systems incorporate diesel back-up for use at night and poor weather conditions (alternative energy storage systems, such as batteries, remain expensive with uncertain lifespans).

There is minimal data available on any existing systems and possibly none for operational systems that were installed more than 5 years ago. Schneider Electric estimate that approximately 85% of solar PV systems fail with 12 months of installation, due to low quality equipment combined with poor design and installation.

So, while potential cost savings and emissions reductions are possible through a transition to renewable power, due diligence must be carried out to ensure the systems are of high quality and will perform as required for the planned duration.

OBSTACLES TO IMPLEMENTING SUSTAINABLE ENERGY PROGRAMMES

- High initial cost of renewable systems cannot be paid for through annual budgets
- Limited potential for both parties to sign a long-term energy service contract
- Procurement focus on initial costs, not life-cycle costs
- Technical expertise is not engaged or is not suitably experienced
- Inefficient appliances and unrestricted energy use
- No incentives to reduce consumption
- No measurement of fuel or energy consumption
- Management unwilling to take risks on new systems which involve high costs and longer-term outlook
- No clear guidelines or support for energy efficiency measures or behavioural change
- Lack of awareness and accountability
- High failure rate of solar PV systems – absence of reliable, accurate data and specialist skills
- Lack of coordination between organisations in site planning and services

The delivery models noted below explore options which transfer the responsibilities to the supplier, which may be a preferable option and result in a lower operational risk to the UN.

DELIVERY MODELS

The following models describe possible approaches to accessing electricity, first of all in contractual or legal terms, and then exploring financing options. The best option for any specific location will depend on multiple factors, and it is possible to combine elements of the below options to create more complex models, depending on context and requirements.

Power Purchase Agreements (PPAs)

This is how most agencies already access and pay for electricity when connected to the grid. The agency signs an agreement with an energy provider who connects the facilities required to their electricity grid. This would be the simplest way to obtain electricity, requiring none of the difficulties or risks associated with generating and distributing your own electricity. The correct operation of the system, and all equipment and repairs remain the complete responsibility of the energy provider (unless damage is caused by the customer). The system is owned by the energy provider, although a buy-out clause can be incorporated into the contract.

Leasing

The UN agency contracts an energy provider to install and operate an electricity system for a fixed monthly rate over a specified time period. The system will need to meet maximum estimated demand and there are no implications for reduced energy use by the customer. The correct operation of the system, and all equipment and repairs remain the complete responsibility of the energy provider (unless damage is caused by the customer). The system is owned by the energy provider, although lease-to-own contracts can be developed.

Own & Operate

1. The agency designs, procures and operates its own electricity system, contracting a third party for the maintenance and repair of the system. The correct operation of the system, and all equipment and repairs, however, remain the complete responsibility of the UN agency alone.
2. The agency contracts a third party to design, install, operate and maintain the electricity system. The system is owned by the UN agency and the energy provider is responsible for correct operation, maintenance and repairs for the duration of the contract (usually 1-2 years). There could be penalty clauses for non-performance of the system due to any issues with its design, equipment or operation.

Outside of costs, primary considerations in developing the most suitable delivery model include time (design, procurement, installation), reliability, logistics of supply, local capacity, security and the expected life of equipment.

For remote locations where there is no electricity grid, an energy provider would need to construct electrical generation and distribution systems in that location. The energy provider would need to secure a long-term contract with the consumer (UN Agency) before agreeing to make the investment in setting up such a system. However, UN agencies are not willing to set up longer-term agreements in unpredictable, sometimes rapidly changing settings.

Possible solutions

One possible solution is to set up a guarantee mechanism so that capital costs, and/or agreed annual revenue from consumption, are paid to the energy provider should a specific event occurs that triggers the termination clause in the contract between the two parties, for instance when facilities are closed or reduced as displaced people return to their place of origin. Such guarantees would allow both UN agencies and private sector energy providers to enter into long-term agreements, with risks considerably reduced. The amount repayable would

diminish over time, reducing to zero at the end of the contract term or when the return on investment point has been reached.

If UN agencies, and other organisations, collaborated to share power resources, this would further reduce the risks for all the delivery models listed above, in addition to reducing costs.

In some cases, a third party would carry out assessment, design and tendering to select the most suitable energy provider to respond to shared electricity needs. Those agencies and organisations working in the area could then simply sign contracts with the energy provider to supply electricity, potentially without needing long-term agreements.

Reliability of supply is an important factor, particularly for health and security services. It is also important to ensure risk-mitigation or other supports do not adversely distort market opportunities for other actors.

QUESTIONS - WORKSHOP I

1. Under what conditions could UN agencies sign long term agreements for the supply of energy services (up to 10 years)? What mechanisms could be created to make this possible?
2. Would multiple UN agencies be willing to jointly sign contracts with an energy provider to address their combined energy needs in specific locations?
3. Under what conditions can UN agencies sign contracts with companies where tendering has been carried out by a third party?

WORKSHOP I - DISCUSSIONS AND CONCLUSIONS

1. Agencies already have agreements for 5+ years, and the conditions required for binding long-term agreements are clearly defined terms, conditions and termination clauses. Standard frame agreements or LTAs would not be of much use to commercial enterprises for PPAs or leasing, as they are without obligation or commitment. Contracts would need to be drafted for consideration by both parties to create approved templates that could be used for contracting energy services over the long-term.

Agencies may need considerable funds to make compensatory payments in the event of early termination and may not be willing to take on this commercial risk, as such funds may not be available. This risk is multiplied if an agency takes on several similar contracts. Financial guarantee mechanisms would help to transfer the commercial risks of termination clauses in long-term agreements, whereby the termination payments would be paid by others (e.g. donor funded or insured guarantee).

2. Agencies acknowledged the benefits in having central, shared electricity supplies to address the needs of multiple organisations, and also in aggregating projects within a region to improve the business opportunity for the private sector. Participants stated a willingness to collaborate on joint projects, and noted that shared contracts already exist between humanitarian organisations, including contracts for the purchase of electricity.

In situations where humanitarian organisations procure and take ownership of energy systems, FAs or LTAs could be used. UN agencies can use LTAs created by other UN agencies for procurement of the same goods or services, once permission is granted and the same agreement conditions are adhered to. This facility, known as 'piggy-backing', is frequently used by agencies to save time and resources. It does not apply to non-UN agencies. However, share agreements between other organisations do exist and can be created for energy services.

3. UN and other humanitarian agencies can engage commercial enterprises to design and procure services, where they do not have the required expertise in-house. Several agencies can use the same enterprise once due diligence has been carried out by the specific agency. There is also a potential for mutual reliance agreements between UN & non-UN agencies that could allow them to share contracts.

QUESTIONS – WORKSHOP II

1. What are the key challenges in providing energy services in remote locations?
2. What are your key challenges in working with humanitarian agencies?
3. How can the private sector demonstrate that their organisations share similar values and objectives with humanitarian agencies?
4. What are the pros and cons of the delivery models presented?

WORKSHOP II - DISCUSSIONS AND CONCLUSIONS

1. Remote locations involve higher costs of maintenance, including transport of staff and equipment to areas with minimal infrastructure. It is also difficult to find qualified and experienced people locally, or to attract such people to relocate to these locations.

Communities in remote locations often have low levels of electricity demand combined with limited ability to pay and lower population density, so that project revenues do not recover the costs of investment. Without financial supports, either to the energy provider or to the consumer, such projects present a very high risk and create challenges in accessing debt from finance institutions. If key anchor tenants were present in such locations, with minimum secured levels of energy usage, this could provide a viable base project, which could be expanded to serve additional customers, including local homes and businesses.

2. There is no single section or point of contact within UN agencies that are responsible for energy projects making it challenging to present the services available without going through a tendering process. Procurement sections do not have personnel with sufficient expertise and experience in this area, and usually only engage with private companies through official expressions of interest and tendering processes. This lack of open dialogue does not allow the organisation to fully explore the range of potential options on the market, or for companies to properly present their full range of services, or to adapt their services to better suit the specific needs.

Also, there are no clear process for approaching energy services within organisations, with many successful projects being dependent on individual energy champions to drive projects forward. Staff changeover can be quick, and replacements may be tasked with different priorities so that potential energy projects are no longer pursued.

Additionally, most of the tenders published for energy projects only consider the initial purchase price for the system with not enough emphasis on quality and long-term performance. Tendering processes can also take considerable time from submission to award.

3. Opportunities exist for energy providers to provide sustainable energy services to humanitarian agencies at lower costs with reduced emissions, in addition to enabling affordable, clean and reliable energy access to the forcibly displaced and hosting communities, increasing the effectiveness of the humanitarian response.

Customer care, quality of service, combined with transparency and accountability are key to operating a modern business and it would not be possible to continue to be profitable in today's market without prioritising these objectives. Profitability is key to continuation of private businesses, as funding is key to humanitarian operations, and in both cases, resources will diminish if core principles are not maintained at all levels in effective delivery of service. There is a willingness among participants in the workshop to demonstrate that private companies share similar objectives to humanitarian agencies and that they can work together towards the shared mandates, collaborating effectively to improve self-reliance and resilience, and reducing protection risks.

The language and terminology used can be different across many sectors, agencies and businesses, so that it could help to provide a guide to key terms, to enhance mutual understanding of operations and objectives.

4. For PPAs to be employed, more than one large customer with high energy demand would be required, since there are high administrative and legal costs to set these up. PPAs also require clear regulations from local authorities and this can cause delays or restrictions to project delivery. These would probably only be suitable for large projects of 1MW+.

Leasing may be the best option in many cases with lower set up costs, defined annual energy budgets and guaranteed levels of income which reduces risks. The energy provider could potentially assist in coordinating provision of electricity to multiple agencies and collection of payments, however, it would be cheaper and easier if one agency were to take overall responsibility for the contract and payments. This mirrors many existing situations where the lead agency takes on the contract with the local electricity company or provides diesel to other organisations for their generators. Leasing models could also allow more flexibility in places where regulations are unclear or do not allow for PPAs.

Ideally, responsibility for the design, operation and maintenance of the system would remain with the energy provider, so that the agency does not take responsibility for issues in which it does not have the expertise or experience to properly address. However, owning and operating smaller systems (less than 50kW) could not be provided at competitive prices, unless several projects were grouped into one package within a geographic area. Larger energy providers may not be interested in projects with a value than less than US\$ 1 million.

FINANCING

The project life of a solar PV system is expected to be 20 years, and up-front costs could equate to 5 years' worth of the organisations current electricity budget, or more. There is no guarantee that a poorly designed system, with little or no maintenance, will last 20 years, or even 5. This presents a considerable risk to an organisation that receives and manages funding on an annual basis, and has little experience in design, procurement, financing and operating renewable energy systems.

All organisations need to use annual budgeting, though for many, it is possible to plan and allocate those budgets over several years for specific projects or programs. For many humanitarian organisations, due to the unpredictable nature of humanitarian response and annual cycle of most donations, it can be very challenging to allocate budgets that do not exist towards uncertain future needs. For example, UNHCR receives approximately 90% of its donations from governments, most of whom provide funds on an annual basis. Additionally, UN agencies are not permitted to arrange loans or financing to generate the capital required up-front and to save over the longer term.

1. Grants & incentives

100% grants received from donors is normally how UN agencies finance capital-intensive projects. Proposals to donors outline the up-front costs required and levels of savings which will result from the capital donation. This capital investment is not repaid and the agency covers costs of maintenance from normal annual budgets.

Donors can also provide grants directly to the energy provider, either up-front, on completion of agreed deliverables (results-based financing) or a mixture of both.

2. Lending

This is normally how the private sector fund capital-intensive projects, where loans are arranged with financial institutions. The business case outlining the annual costs and profitability, repayments, payback term and risks are analysed and agreed. Capital investment, plus interest, is repayable over the term of the loan.

UN agencies are not permitted to access loans from third parties, however, some agencies have established internal capital funds from which country operations can take interest-free "loans" for capital intensive projects. The annual savings made are used to repay the internal fund over time.

3. Power Purchase Agreements

The agency pays an energy provider per unit of electricity consumed, with small monthly fixed fees. Initial connection costs are also usually payable, however, capital required is low in most cases.

Tariffs and charging structures are set by the energy provider, are not normally analysed or negotiated by the agency, and can be subject to increases. Payments are made monthly and the exact amount that is to be paid annually is unknown so that allocated annual budgets are estimations (sometimes hugely underestimated).

4. Leasing

The agency pays a fixed monthly amount to the energy provider for a specified term with no up-front capital required. Annual budgets are fixed and predictable.

There are multiple combinations and permutations of the above models possible to develop optimal financing options, with mixtures of capital grants, incentives, PPAs and fixed monthly charges.

With PPAs, the less you use, the less you pay. This provides incentives for the customer to be more energy efficient, but not for the energy provider who stands to lose earnings from improved efficiency. On the other hand, leasing with a fixed monthly charge provides motivation for the energy provider to promote energy efficiency, but no incentive for the customer to reduce consumption. A mixture of fixed monthly charges, combined with tariffs per unit consumed may be a better option, with the potential to develop payment structures so that all parties benefit from reduced energy use.

EXAMPLE

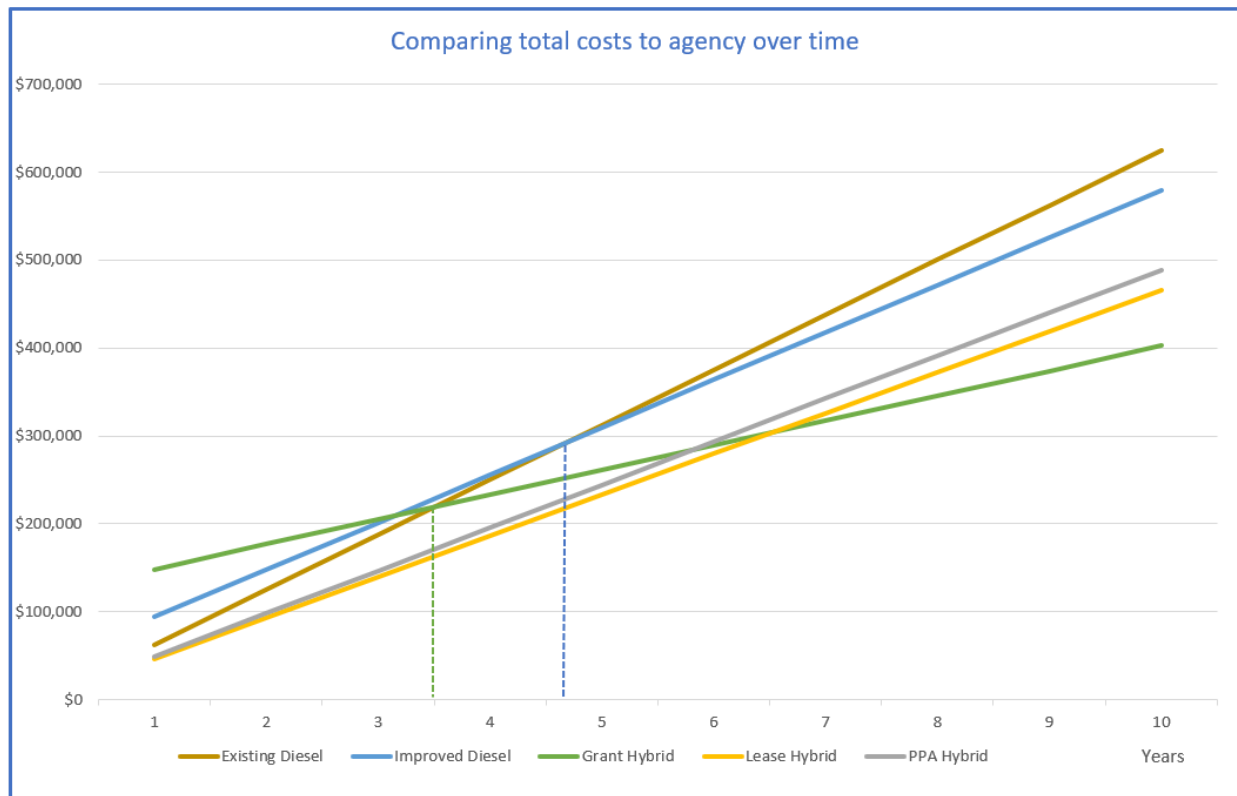
The simplified example below depicts a real-life case of water pumping in a refugee setting in Kigoma Region, Tanzania, showing total costs over 10 years. The 1st scenario shows the existing situation which uses over-sized diesel generators, the 2nd, 3rd and 4th scenarios provides an overview of a hybrid system with solar PV combined with diesel generator through a variety of financing options.

WATER PUMPING HYBRIDISATION - COST COMPARISONS - AGENCY PERSPECTIVE					
	Existing Inefficient Diesel	Grant Hybrid	Leasing Hybrid	PPA Hybrid	
Initial Capital - Capex	\$0	\$120,000	\$0	\$0	
Annual Payments - Opex	\$62,500	\$28,250	\$0	\$0	
Annual Payments - Power Tariff	\$0	\$0	\$46,588	\$48,917	
Monthly Payments	\$5,208	\$2,354	\$3,882.29	\$4,076.39	
Total Cost 10 yrs	\$625,000	\$402,500	\$465,875	\$489,167	
Total Savings		\$222,500	\$159,125	\$90,334	
Cost/m3 of water	0.150	0.097	0.112	0.118	
Cost/kWh (LCOE)	0.222	0.143	0.166	0.174	
	100%	64%	75%	78%	

The above calculations demonstrate the costs for different financing options, showing up-front investment costs required (Capital Expenditure - Capex) and annual operating costs (Operating Expenditure - Opex).

For leasing, the energy provider would use an annual average of total project costs, which includes all possible costs, repayments to lenders and profit.

For PPAs, the cost per unit of energy (kWh) over the period of the project is used by private sector energy providers to estimate tariffs. When considered over the length of the project, it is known as the levelized cost of energy or LCOE. It is also possible to create a mixed charging structure which incorporates a fixed monthly rate plus a rate per unit of energy.



In graph form, we can see the high initial costs for the hybrid system and total costs over 10 years with payback periods for each option compared to the existing situation. Leasing and PPA options have minimal up-front costs so that savings are made from the start, however, the grant option becomes cheaper over time. These calculations do not include replacement parts, depreciation or internal resource costs.

The best option in one context is not necessarily the best in other locations and this depends on multiple factors for the specific location, all of which need to be assessed before choosing which model is most appropriate. Expertise should be engaged to assess and analyse each possible option, presenting the business case for each and recommending the best option, clearly outlining pros, cons and risks.

Factors to be considered include:

- **Energy demand:** Peak Load, daily consumption, night-time and day-time needs, energy efficiency;
- **Technology available:** Grid, diesel, solar, wind, hydro, battery, etc;
- **Lifetime project costs:** Opex + Capex – comparing LCOE for each option;
- **In-house capacity:** Expertise to design, operate, monitor, evaluate;
- **Financing:** Grants, lending; and
- **Risk:** Capital, reliability, guarantees, instability.

QUESTIONS - WORKSHOP I

1. What minimum % savings would agencies wish to make per year over existing diesel systems in order to consider implementing alternatives?
2. What would be required to develop procurement processes for energy services which consider 5-10 year costs, as opposed to initial price only (i.e. compares life-cycle costs for each bid - initial capital cost + operation, maintenance and replacement costs)? Do similar processes exist in other sectors, e.g. leasing vehicles?
3. What institutional mechanisms and support would need to be in place to shift to energy-efficient operations and renewable systems?

WORKSHOP I - DISCUSSIONS AND CONCLUSIONS

1. There is no definite amount of savings required in order to consider transition to renewables, and cost is certainly not the only factor. At an institutional level, savings would represent less than 0.5% of budget and other factors such as climate commitments, moral obligation and public opinion may have greater influence. At field level, savings could be higher in some cases and staff will be more closely concerned with budgeting. However, governments, donors and institutional policy would also affect the decisions.
2. Procurement rules do not preclude any of the delivery models or financial approaches. However, the practical application of these rules is likely to create some challenges as procurement personnel do not have a full understanding of energy services or in evaluating life-cycle costs of technically and financially complex solutions. It would therefore be beneficial if personnel working on contracting energy services were provided with training on how to tender and evaluate complex technical and financial bids for energy projects, which included comparing life-cycle costs of alternatives over a 10-year period or longer.
3. There is no single mechanism or solution that would lead to the adoption of sustainable, cheaper and cleaner energy practices across any of the organisations present. There are a wide range of possible options, technologies and business models, in addition to the need for multi-sectoral collaboration within the agencies. To create strategies and action plans, the barriers would need to be clearly defined and potential solutions explored across all sectors. These plans, developed at a working level, would need full support at the executive level. It was noted that all agencies experience very similar challenges in promoting institutional change. It was also noted that in the absence of clear institutional policy and high-level support, current efforts to transition are dependent on the motivation and capacity of individuals, who are often reassigned to other areas, at which time momentum is lost. Without institutional structures to drive the process, there is also no specific section or personnel who are given responsibility for this area, making it challenging for outside actors to provide support.

Participants noted that initially agencies may wish to focus on transitioning their own operations before trying to create larger energy systems that could also power the homes and businesses of refugees and host communities.

QUESTIONS – WORKSHOP II

What risk mitigation or financial mechanisms would allow you to provide solutions to humanitarian agencies and local populations?

WORKSHOP II - DISCUSSIONS AND CONCLUSIONS

Financial supports in the form of capital grants or assisted revenue streams are useful, e.g. performance-based finance, and indeed essential to establish projects that would not be viable without these supports, e.g. setting up mini-grids in very low-income communities with low levels of demand.

Low income communities, as is the case for most forcibly displaced settings, may require financial and technical supports to enable electricity connections and internal wiring for households, in addition to requiring support to pay for energy services. As communities become integrated and more self-reliant, such support could be reduced gradually, with only the most vulnerable requiring extended support, as is the case in most affluent societies.

For providing energy services to humanitarian organisations, there is a clearer business case with better defined annual energy needs, which means projects could be viable without such financial support mechanisms. However, there are large up-front investments to install these energy systems, and therefore risks, and associated costs, become very high without longer-term contracts with the humanitarian agencies. Given the unpredictable nature of humanitarian crises, humanitarian agencies are unwilling to enter into such long-term agreements which could force them to pay for services that they no longer require.

Financial guarantee mechanisms were identified as key instruments which could resolve this issue and greatly mitigate risks, also reducing costs and making it easier to attract investors and lenders. Through the guarantee mechanism, capital costs, and/or agreed annual revenue from consumption, would be paid to the energy provider should a major event occur that triggers the termination clause, e.g. facilities are closed or reduced as displaced people return to their place of origin. The amount repayable would diminish over time, reducing to zero at the end of the contract term or when the return on investment point has been reached. In some cases, it may also be possible to redeploy the energy system elsewhere, which would reduce the amount payable under the guarantee.

Legal contracts would need to be adapted to include specific termination clauses that would trigger payments through the guarantee mechanism. Other clauses may also need to be inserted, including reliability of service/non-performance of the energy provider, potential to expand systems to provide services to more than one customer, etc. It was recommended that these clauses and legal contracts for such energy services would be standardised, leading to faster processing time and quicker delivery of projects. However, certain elements of the contracts would need to be defined for each project, however ideally this would not require input from legal services in each case. These contractual terms could be co-designed by the legal teams of humanitarian agencies and several energy providers.

Market research would need to be carried out to investigate what guarantee products are currently available or could be adapted to suit. These could be risk mitigation funds, insurance products or similar instruments that would pay out the remaining value of the investment upon contract termination. The costs of such instruments could be paid for by interested donors or possibly impact investors. These would lower the risks and costs for both the energy provider and humanitarian agency, enabling longer term service agreements that have clear termination clauses.

THE WAY FORWARD

Objectives for transitioning to more sustainable solutions for the provision of electricity include:

- Lowering emissions towards meeting UN commitments to climate neutrality and achieving SDG7 goals;
- Reducing operating costs to make better use of funds for agency core activities;
- Integrating aims of humanitarian and development actors; and
- Enhancing opportunities for private sector and local economies, thereby increasing resilience.

Following Workshops I and II, a series of recommended actions are to be undertaken over the coming months by Working Groups formed by participants from both workshops. The results of the Working Groups will be brought together in a third workshop with the objective of implementing systems, mechanisms and approaches in target locations. Evaluation of these projects would lead to the development of standard approaches, contracts and mechanisms that can be easily deployed and scaled-up across the different contexts in which humanitarian agencies operate.

A summary of recommendations and associated actions are detailed below.

Webinars will be held with participants of Workshop I and II to agree the next steps and identify which ones are to be completed before the Refugee Forum in December 2019.

KEY RECOMMENDATIONS

Recommendations	Actions	Action By
1. Humanitarian Agencies, together with commercial enterprises providing energy services to co-develop standardised long-term agreements, clearly detailing terms, conditions and termination clauses for approval by all parties.	a) Engage with humanitarian agencies and commercial enterprises to co-design key contractual clauses for single and multi-agency end users, which can be treated as “pre-approved” by both parties to speed up contract negotiations and project implementation.	a) GIZ legal consultant, UN Working Group and Private Sector Working Group supported by the GPA Coordination Unit
2. Explore the potential for risk mitigation and financial support mechanisms that facilitate increased private sector engagement in providing sustainable energy services in humanitarian settings.	a) Map out the pathway to assess the pros and cons associated to different approaches to, and governance structures of, a possible Global Guarantee Mechanism.	a) Shell to lead coordination of Financial Specialists, UN Working Group, Private Sector Working Group and Donors supported by GIZ and the GPA Coordination Unit
3. Develop a training program for procurement personnel within humanitarian agencies on undertaking complex technical and financial evaluations of energy projects using life-cycle cost analysis.	a) Undertake a training needs assessment and develop a training package to support procurement services in designing and evaluating complex technical and financial tenders, and in assessing energy goods and services using life-cycle costs analysis methods. b) Explore potential to deploy experts in electricity generation and energy finance to work with procurement sections within humanitarian agencies.	a) UN Working Group supported by GIZ and the GPA Coordination Unit b) NORCAP and others
4. Undertake a review of the processes within humanitarian agencies in order to standardise the approach to procuring sustainable energy goods and services, outlining potential barriers and workable solutions, and to develop clear strategies and pathways which management can directly support.	a) Explore, initiate and maintain a core multi-agency, multi-sector working group that supports the UN's energy transition and works with the Private Sector Working Group to co-design and implement solutions. b) Undertake a review of the processes and delivery mechanisms within humanitarian agencies (not just procurement or supply) noting who is involved where, their contractual relationships in order to standardise the approach to procuring sustainable energy good and services; outlining potential barriers and workable solutions. c) Review of existing energy goods and services in procurement catalogues across UN agencies and develop shared processes, including UN Web-buy plus and UNGM. d) Continue to advocate for technical positions at HQ and field levels in humanitarian agencies. e) GIZ and NORCAP to continue to provide technical support to humanitarian agencies as they transition to sustainable energy solutions. GIZ and NORCAP to communicate lessons learnt to wider community. NORCAP to engage with other standby partners and private sector organisations who could deploy expert staffing. f) Continue to advocate for the development of sustainable energy strategies within humanitarian agencies and the need to move from energy champions to systemic organisational change. g) Seek support from key donors to advocate for systemic organisational change.	a) UN Working Group supported by GIZ and the GPA Coordination Unit b) UN Working Group supported by GIZ and the GPA Coordination Unit c) UN Working Group supported by GIZ and the GPA Coordination Unit d) All e) GIZ and NORCAP f) All g) All

5. Coordinate with commercial enterprises to obtain relevant and reliable data on existing renewable energy projects and demonstrate the case for transitioning from reliance on diesel to more sustainable solutions.	<ul style="list-style-type: none"> a) Coordinate with all stakeholders to obtain relevant and reliable data and demonstrate the business case for transitioning from diesel to more sustainable solutions. b) Approach donors to support assessments and energy monitoring tools for target locations in order to build data to demonstrate the needs and develop the business case for improved systems. 	<ul style="list-style-type: none"> a) GPA Working Group 5: Data & Evidence b) GPA Working Group 3: Innovative Finance
6. Increase dialogue between humanitarian agencies, development actors, donors and commercial enterprises to promote mutual understanding and foster strengthened partnerships.	<ul style="list-style-type: none"> a) Working with UN Private Sector Partnership teams, map out agency mandates and core principles against components of private sector management systems, to identify system gaps, corrective actions and training needs, in order to demonstrate compliance to humanitarian principles. b) Identify private sector stories and build a portfolio of case studies on how the private sector has supported humanitarian organisations deliver their mandates through the provision of cleaner, cheaper energy solutions and share them with the humanitarian community. 	<ul style="list-style-type: none"> a) UN Working Group and Private Sector Working Group supported by GIZ and the GPA Coordination Unit b) Private Sector Working Group supported by the GPA Coordination Unit
7. Identify potential locations where energy sources could be shared across agencies, and where multiple systems could be grouped into a single service agreement. Develop a clear business case and engage energy providers in implementing sustainable solutions.	<ul style="list-style-type: none"> a) Identify target locations conducive to establishing shared, sustainable energy systems across multiple agencies. b) Assess energy needs and use measured data to develop a clear business case for delivery through energy providers under single service agreements. c) Define a roadmap for a coordinated approach to the development of a standardised approach that results in a proof of concept project in the field, e.g. Djibouti. 	<ul style="list-style-type: none"> a) UN Working Group and Private Sector Working Group supported by the GPA Coordination Unit b) UN Working Group and Private Sector Working Group supported by the GPA Coordination Unit c) UN Working Group and Private Sector Working Group supported by the GPA Coordination Unit
8. Develop approaches to increase availability of multi-year funding and develop alternative financing mechanisms that can support the purchase of private sector solutions through annual budget cycles.	<ul style="list-style-type: none"> a) Meet with key donors and explore, amongst other things: their role in advocating for change; their views and support for a global guarantee mechanism and ways to increase multi-year funding. Coordinate with actions in Recommendation 2 	<ul style="list-style-type: none"> a) GPA Working Group 3: Innovative Finance

This workshop series is delivering recommendations from the Global Plan of Action for Sustainable Energy Solutions in Situations of Displacement, which is steered by the following organisations:

